CHAPTER – II

FOOD PROCESSING INDUSTRY IN INDIA
AND ANDHRA PRADESH
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Agriculture continues to be one of the cornerstones of the Indian economy. Though the share of agriculture in GDP has been declining over the years, its role remains critical as nearly 60-70% of the Indians are directly or indirectly dependent on agriculture. It is estimated that if the country has to maintain a GDP growth rate of over 8%, the agricultural sector has to grow at the rate of at least 4%. Government has initiated massive programs for investment infusion in agriculture sector during 11th plan through Rashtriya Krishi Vikas Yojana and National Horticulture Mission. This has lead to increase in production and productivity. In order to ensure proper return to stakeholders it is essential that suitable post harvest management be adopted to add value and reduce wastage. In this background food processing industry in India is increasingly seen as a potential source for driving rural economy as it brings synergy between industry and agriculture.

Food processing is all about converting raw food and other farm produce into edible, usable and palatable form. It is the conversion of clean, harvested, butchered or slaughtered components into marketable food products with value addition so as to improve their quality, reliability and shelf life. Further Food processing is about preservation of food while providing greater potential for export.

Food Processing began in the prehistoric age with drying of fruits in nature or animals storing for coming winter feed need. There are crude food processing types such as over hear or fire, fermenting, sun drying and preserving with salt and later humans learnt steaming for cooking. Food preservation has become a key part for warriors ‘during wars and sailors’ as set travels across continents during last two thousand years. Industrial revolution in 17th century began to change food processing as Nicolas Appert developed a vaccum bottling
process to supply food to troops in the French army. Canned tins were developed by Peter Durand in 1810. These food processing technologies were largely developed to serve military needs in many countries. As population rose in the early 20th century and travel became regularly for many business people with added change in food habits led to newer development of food processing techniques such as spray drying, juice concentrates, freezing, artificial sweeteners, colorants and preservatives. Instant packaged foods such as biscuits, chocolates, bakery items, variety of fruit drinks attracted higher percentage of students. As refrigerators along with microwave ovens penetrated global markets dried instant soups, reconstituted fruit juices and self cooking meals began to be developed. Thus it is clear that the former food processing techniques were limited, and involved mere salting, smoking, curing, pickling, drying and curdling, with economic progress, the development of food manufacturing has led to new technologies emerging in areas such as milling, preservation, packaging, labeling and transportation, etc., all of which help in enhancing product quality and food safety as well as bringing down costs.

CHART II.1  DEPICTING THE STRUCTURE OF INDIAN FOOD PROCESSING INDUSTRY
Food-processing industry has been registering good growth since the past few decades and particularly in the nineties. The conditions are now ideal for the growth of this industry. The increasing emphasis on food processing industry can be best known through the improving budget allocation over the years to the food processing industry which can be shown through the following chart:

**Chart II.2 Depicting the Year-Wise Budget Allocation & Expenditure to Food Processing Industry**

<table>
<thead>
<tr>
<th>Year</th>
<th>Allocation</th>
<th>Expenditure</th>
</tr>
</thead>
<tbody>
<tr>
<td>2007-08</td>
<td>200.00</td>
<td>182.97</td>
</tr>
<tr>
<td>2008-09</td>
<td>240.00</td>
<td>225.12</td>
</tr>
<tr>
<td>2009-10</td>
<td>380.00</td>
<td>272.51</td>
</tr>
<tr>
<td>2010-11</td>
<td>400.00</td>
<td>394.39</td>
</tr>
<tr>
<td>2011-12</td>
<td>560.00</td>
<td>516.62</td>
</tr>
<tr>
<td>2012-13 (BE)</td>
<td>600.00</td>
<td></td>
</tr>
</tbody>
</table>

There has been diversification of Indian diets away from food grains to high value products like milk and meat products and vegetables and fruits. The increasing middle class due to rapid urbanization, increasing per-capita income, increased participation of women in urban and impact of globalization has been largely responsible for the diet diversification in India.

Hi-value products have caught the fancy of the expanding middle class and the result is visible in the growing demand for hi-value processed products.

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71 Rao, Dev and Deshingkar-2003 in ‘changing consumption patterns
The use of processed food is becoming popular due to various socio-economic factors such as economic liberalization, changes in taste, high cost of household-labour, increase in the number of working women, improvement in the living standards of people, etc. Today the urban based Indian family prefers to dine out every now and then in restaurants and dhabas rather than at home. Free income or higher disposable income available among the urbanites has made them to go for various processed foods like jams, atta, double refined oils, butter and cheese, ready-to-eat crispy potato chips, etc. Extensive advertisements of MNCs and Indian companies involved in the food processing industry are also responsible for burgeoning the demand for processed food. The total cultural exposure-taking place in urban areas and countryside too has been altering the face of the food processing industry in India.73

The value addition of food fortification is only seven percent in the country compared to as much as 23% in China, 45% in the Philippines and 188% in the U.K. Only 2% of the fruits and vegetables are processed in India. This is against a processing of 30% in Thailand, 70% in Brazil, 78% in Philippines and 80% in Malaysia. Food processing industry has a crucial role to play in reduction of post harvest losses. The most important point in the food industry is that a substantial portion being rural based it has a very high employment potential with significantly lower investment. The fruits and vegetable farming for processing is not only employment intensive but also enhances the gross as well as net returns of the farmers.

CLASSIFICATION OF FOOD PROCESSING INDUSTRY:

The FOOD PROCESSING INDUSTRY is broadly classified into two groups:

1. Primary Food Industry: This consists of rice mills, flour mills, oil-seed crushing and sugar manufacture, spice grinding etc., and

2. Processed Food Industry: This comprises units engaged in the manufacture of value added products like preserved fruits and vegetables, meat, fish and dairy products, breakfast food mixes, frozen foods, spice blends, extractives, snack foods, etc.

Food processing industry possesses significant backward linkages with the agricultural sector and presents tremendous potential for forward linkages with the rest of the economy.

**CHART II.3 DEPICTING SHARE OF FOOD PROCESSING INDUSTRY IN MANUFACTURING ALONG WITH SHARE OF DIFFERENT SEGMENTS IN FOOD PROCESSING INDUSTRY**

![Food Processing Chart](image-url)
The organized Food Processing Industry is further classified into many sub-sectors as

TABLE –II.1

<table>
<thead>
<tr>
<th>No</th>
<th>Major sub-</th>
<th>Product range</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Fruits and Vegetables</td>
<td>Fruit pulp, juices, canned fruits, jam, pickles, squashes, dehydrated and freeze dried vegetables, canned mushrooms.</td>
</tr>
<tr>
<td>2</td>
<td>Milk and milk products</td>
<td>Sweetened condensed milk, milk powder, ghee, ice-cream, malted milk food, butter, cheese, milk based baby food items, dairy milk whitener, chilled and processed milk.</td>
</tr>
<tr>
<td>3</td>
<td>Meat and poultry</td>
<td>Poultry products like eggs, egg powder, canned meat, pork and other meat products, chilled and frozen sheep and goat meat, buffalo meat.</td>
</tr>
<tr>
<td>4</td>
<td>Fisheries</td>
<td>Canned and frozen forms of fish, individual quick frozen products, minced fish products like fish sausage, cakes, cutlets, pastes, surimi, texturised products and dry fish.</td>
</tr>
<tr>
<td>5</td>
<td>Beer and alcoholic drinks</td>
<td>draught beer, canned beer, country liquor, Indian made foreign liquor (IMFL) that includes wines, whisky, rum, vodka, gin and brandy.</td>
</tr>
<tr>
<td>6</td>
<td>Processing of grains</td>
<td>Flour of rice, wheat, millets and oil seeds.</td>
</tr>
<tr>
<td>7</td>
<td>Packed food / consumer food</td>
<td>Pasta, bread, cakes, pastries, rusks, buns, rolls, noodles, corn flakes, rice flakes, ready to eat, ready to cook products, biscuits, mineral and packed water, cocoa products.</td>
</tr>
<tr>
<td>8</td>
<td>Packed drinks</td>
<td>All types of soft drinks, non-alcoholic, Sweetened/flavored beverages like cola, Orange, lemon etc.</td>
</tr>
</tbody>
</table>

Source-Ministry of Food processing, Government of India, 2008-2009

Food Processing Units develop perishable and semi-perishable agricultural commodities into storable items especially needed during the off-season. Food processing increases seasonal availability of many foods across the globe with better nutrition and food security. Food processing is a new development of ready-to-consume products and saves time for cooking and could be cheaper.
Food Processing Units can be defined in three-broad categories as:

1. Perishable foods: Those that deteriorate readily such as fruits and vegetables, unless special methods of preservation are employed.

2. Semi-Perishable foods: Those that contain natural inhibitors of spoilage such as root vegetables or those that have received some type of mild treatment which creates greater tolerance to the environmental conditions and abuses during distribution and handling such as pickled vegetables.

3. Non-perishable foods (shelf-stable): Those that are non-perishable at room temperature such cereal grains, sugar, nuts. Some have been made shelf stable by suitable means, canning, or processed to reduce their moisture content, dried fruits such as raisins. Food preservation in the broad sense refers to all the measures taken against any kind of spoilage in food.

Indian food processing sector is one of the largest sectors in the country in terms of production, consumption, export and Gross Domestic Product growth. It ranks 5th in size in the country. It covers many activities like agriculture, horticulture, animal husbandry etc. Food Processing Industry has developed in India as a result of the diversification and commercialization of Indian agriculture. This sector acquires high priority as it reduces post-harvest losses, brings value addition in agriculture, creates high export potential, and gives greater bargaining power to the farmers for their products and improves the living standards of people. The sector accounts for around 14 percent of total industrial output and around 6 percent of the GDP. Its contribution to the GDP of the country is expected to go up to 12% by 2020. The food processing market in the country is growing at the rate of 7-8% per annum and is expected to grow at 10% in the coming years. The size of the industry is estimated at US $ 70 billion. Presently, the sector employs about 13 million people directly and about 35 million people indirectly. This industry is highly labour intensive, and currently

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offers employment to 2.5 lakh people per annum. \(^7^5\) Food processing sector in India had grown by 8% between 2006 and 2010 which is better than the growth of the manufacturing sector but Agriculture has been growing only at 2-3%. According to Piruz Khambatta, Chairman and Managing Director, Rasna at Food and Beverage conference in 2012 raised a Key statement, “Food processing can do to rural India what IT has done to urban India.” Food processing would bring prosperity and growth for rural India. Business experts and industrialists have to realize growth of food processing sector as 31% of spending done by Indians is on food. Food processing would be crucial for an agricultural nation like India. Expansion of food processing is imminent with huge scientific, educational and management talent along with vibrant and developed finance market. This sector will be a boon for SMEs and lead to food security as supply varies because of inaccuracies in predictability of rains. Stable food processing level would control food prices.

The ministry of Food Processing Industries was set up in July, 1988 to give an impetus to development of food processing sector in the country.

A major issue facing the country is to ensure remunerative prices to the farmers for their produce. If the surplus production is processed and marketed both inside and outside the country there will be greater opportunities for adding to the income of the farmers and employment. A strong and dynamic food processing sector plays a vital role in diversification and commercialization of agriculture enhances shelf life, ensures value addition to agricultural produce, generates employment, enhances income of farmers and creates markets for export of agro foods. The ministry of food processing industries is concerned with formulation and implementation of the policies and plans for the food processing industries within the overall national priorities and objectives. The ministry acts as a catalyst for bringing in greater investment into this sector, guiding and helping the


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industry and cause a favorable environment for healthy growth of the food processing industry.

ROLE OF THE MINISTRY:

The functions of the ministry can be broadly classified under,

(i) Policy support initiatives which include formulation and implementation of policies for the food processing sector within overall national priorities and objectives.

(ii) Development initiatives which include providing assistance to the various plan schemes to food processing industries, human resource development etc.,

(iii) Promotional initiatives which include creating awareness about the potential and prospect of food processing industries in the country through organizing of workshops, seminars, exhibitions and fairs and conducting studies and surveys etc.,

ORGANISATIONS UNDER MINISTRY OF FOOD PROCESSING INDUSTRIES:

(a) National Institute of Food Technology Entrepreneurship & Management (NIFTEM)

(b) Indian Institute of Crop Processing Technology (IICPT)

(c) Indian Grape Processing Board

(d) National Meat & Poultry Processing Board (NMPPB)

The Ministry continuously interacts with various ministries of the government of India and state governments like Agricultural and Processed food export development authority (APEDA), Marine Products Export Development Authority (MPEDA), National Co-operative development corporation (NCDC), National Horticultural Board, R & D Institutes, quality control laboratories, industry associations etc., in order to achieve its objectives. The ministry also has close interactions with the institutions such as CFTRI, Mysore, Centre for Post-Harvest Technology, Ludhiana, Entrepreneurship Development Institute, Ahmedabad
and other developmental organisations for preparation of plans and implementation of projects in various sub-sectors. Industry organisations such as CII, PHDCCI, ASSOCHAM, ICC and FICCI are closely involved while developing the programs of the Ministry and their implementation.

Ministry of Food Processing Industries has in consultation with State/UT Governments, nominated state nodal agencies (SNA) for food processing industries to coordinate and monitor various activities pertaining to food processing sector in each state. These SNAs have to play a critical role in the development of the food processing sector in the states for which the ministry interacts with the state nodal agencies periodically and they are provided with annual recurring and periodical non recurring grants which are essential to carry out their functions effectively.

NEED FOR FOOD PROCESSING INDUSTRY:

In May 2011, the Food and Agriculture Organisation (FAO) released a short study on ‘Global Food losses and Food Waste’. FAO said that ‘in developing countries 40% of losses occur at post-harvest and processing levels while in industrialized countries more than 40% of losses happen at retail and consumer levels.’ Until now, India’s ministry of food processing industry, ministry of commerce (Department of Industrial Policy and Promotion), Ministry of Agriculture and our National Agricultural Research system have asserted that it is encouraging investment in the retail ‘back end’ (collection, cold-storage, logistics, warehousing, modern markets, etc), which will substantially reduce post-harvest food waste/loss, help farmers earn more and help control food inflation.
According to some reports, Indian farmers realize only one-third of the total price paid by the final consumer, as against two-third by farmers in nations with a higher share of organized retail, according to DIPP paper.

The other reference is from the Leisa India journal. Leisa is the short form for low external input and sustainable agriculture and the journal discusses the technical and social options open to farmers who seek to improve productivity and income in an ecologically sound way. According to vision 2015 document the objective is the doubling of India’s share in global food trade, from 1.5% to 3% by 2015. “An integrated strategy for promotion of agribusiness vision, strategy and action plan for the FP sector has also been approved by the government,” the minister of state for Food Processing Industry, Harish Rawat, told the Rajya Sabha in a written reply in March 2011. The key word here is ‘agribusiness’ and both the central government and the ministry of food processing industries appear to consider it a matter of pride-in the face of continuing malnutrition in 17 major states- that the average annual growth rate of the food processing sector has doubled in six years: from 7% in 2004 to over 14% in 2010.

The persistence of food waste argument and its proffered technological answer takes on a new importance when the central government’s ‘mega food parks’ plan is brought into the scene. The government has approved 50 such mega food parks for assistance across the country. This is the second factor vital for an understanding of the emerging new industrial food model in India. These mega food parks are designed to cluster food processing units—each will have around 30-35 such units with a collective investment of Rs.250 crore ‘that would eventually lead to annual turnover of about Rs.450-500 crore and creation of direct and indirect employment to the extent of about 30,000 according to the MOFPI’s Mega Food Parks Scheme (MFPS) guidelines.

Critical to the success and profitability of this complex enterprise is the expectation that India will have a large marketable surplus in crops—the India Brand Equity Foundation (IBEF), described as a public-private partnership between the Ministry of Commerce, Government of India and the Confederation of Indian Industry (CII) has estimated that “by 2012, India’s marketable surplus will increase to 870 million tons per year, 40% of which is likely to be accounted for by perishable foods, creating opportunities for the development of storage infrastructure”. The expectation of a marketable surplus of this scale, and the concomitant expectation that it will be readily available for commercial use and merchant profit is the third factor vital for an understanding of the emerging new industrial food model in India.

Despite the large production of food in India, food inflation and food security issues are major concerns for policy makers in the country as they affect the basic need for Indian citizens—to have sufficient, healthy and affordable food.

A nation-wise study on quantitative assessment of harvest and post harvest losses for 46 agricultural produces in 106 randomly selected districts was carried out by CIPHET as follows:

<table>
<thead>
<tr>
<th>Crop</th>
<th>Cumulative wastage (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cereals</td>
<td>3.9-6</td>
</tr>
<tr>
<td>Pulses</td>
<td>4.3-6.1</td>
</tr>
<tr>
<td>Oil seeds</td>
<td>6</td>
</tr>
<tr>
<td>Fruits &amp; Vegetables</td>
<td>5.8-18</td>
</tr>
<tr>
<td>Milk</td>
<td>0.8</td>
</tr>
<tr>
<td>Fisheries</td>
<td>2.9</td>
</tr>
<tr>
<td>Meat</td>
<td>2.3</td>
</tr>
<tr>
<td>Poultry</td>
<td>3.7</td>
</tr>
</tbody>
</table>

Source: A study of CIPHET, 2010
It may be seen that most of the wastage is happening in fruits and vegetables, pulses and cereals. With adequate processing facilities, much of this waste can be reduced thus increasing remuneration to the producer as well as ensuring greater supply to the consumer.

Different stages of processing of food are:

Inputs > Production > Procurement & Storage > Primary Processing > Secondary Processing > Retailing
<table>
<thead>
<tr>
<th>Sector</th>
<th>Primary Processing</th>
<th>Secondary Processing</th>
<th>Tertiary Processing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruits and Vegetables</td>
<td>Cleaning, Sorting, Grading, Cutting</td>
<td>Slices, Pulps, Flakes, Paste preserved &amp; flavored</td>
<td>Ketchups, jam, juice, pickles, Preserves, candies, chips.</td>
</tr>
<tr>
<td>Grains and Seeds</td>
<td>Sorting &amp; Grading</td>
<td>Flour, Broken Rice, Puff Malt and Milling</td>
<td>Biscuits, noodles, flakes, Cakes, namkeen</td>
</tr>
<tr>
<td>Oilseeds</td>
<td>Sorting &amp; Grading</td>
<td>Oil Cakes</td>
<td>Sunflower, groundnut, mustard, soya, olive oil etc</td>
</tr>
<tr>
<td>Beverages</td>
<td>Sorting, bleaching &amp; Grading</td>
<td>Leaf, Dust and Powder</td>
<td>Tea bags, flavored coffee, soft drinks, alcoholic beverages.</td>
</tr>
<tr>
<td>Milk</td>
<td>Grading &amp; Refrigerating</td>
<td>Cottage cheese, cream, simmered &amp; dried milk</td>
<td>Processed milk, spreadable fats (butter and cheese), yoghurt.</td>
</tr>
<tr>
<td>Meat and Poultry</td>
<td>Sorting and Refrigerating</td>
<td>Cut, Fried, Frozen and Chilled</td>
<td>Ready-to-eat meals</td>
</tr>
<tr>
<td>Marine Products</td>
<td>Chilling and Freezing</td>
<td>Cut, Fried, Frozen and Chilled</td>
<td>Ready-to-eat meals</td>
</tr>
</tbody>
</table>
CONTRIBUTION OF FOOD PROCESSING INDUSTRIES TO GDP

The food processing sector has been growing faster than the agriculture sector which is a positive development which can be shown as follows:

TABLE – II.4

TABLE SHOWING CONTRIBUTION TO GDP BY FOOD PROCESSING INDUSTRY

(Regd. & Unregd.)

(A Comparison with Agriculture)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A. Growth in contribution to GDP (FOOD PROCESSING INDUSTRY)</td>
<td>-</td>
<td>7.52</td>
<td>9.38</td>
<td>9.88</td>
<td>17.1</td>
<td>-1.56</td>
</tr>
<tr>
<td>B. Growth in contribution to GDP (Agriculture)</td>
<td>-</td>
<td>5.53</td>
<td>4.13</td>
<td>6.34</td>
<td>-0.63</td>
<td>-0.08</td>
</tr>
<tr>
<td>C. Growth in contribution to GDP (Ag+fishing)</td>
<td>-</td>
<td>5.55</td>
<td>4.26</td>
<td>6.31</td>
<td>-0.40</td>
<td>0.21</td>
</tr>
</tbody>
</table>

Source: NAS 2011.

EMPLOYMENT POTENTIAL IN FOOD PROCESSING INDUSTRIES:

Persons employed under the registered food processing industries have been increasing from 2004-05 to 2007-08. There has been a fall in the growth rate of employment in registered FOOD PROCESSING INDUSTRY units in 2007-08, probably because the
growth had been very high in the preceding years and also because 2007-08 was a year when there was a global slowdown in economic activity.

**TABLE – II.5**

**TABLE SHOWING NO. OF PERSONS EMPLOYED IN FPI**

<table>
<thead>
<tr>
<th>Sector</th>
<th>Number of Persons (million)</th>
<th>Share %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Organised</td>
<td>1.53</td>
<td>18</td>
</tr>
<tr>
<td>Unorganised</td>
<td>7.00</td>
<td>82</td>
</tr>
<tr>
<td>Total</td>
<td>853</td>
<td>100</td>
</tr>
</tbody>
</table>


**FIG II.4: FIGURE SHOWING SHARE OF DIFFERENT STATES IN EMPLOYMENT IN FPI**

![Share of employment in the food processing industry](image)

- Andhra Pradesh (14%)
- Assam (5%)
- Haryana (3%)
- Karnataka (6%)
- Kerala (12%)
- Madhya Pradesh (2%)
- Maharashtra (8%)
- Punjab (8%)
- Tamilnadu (11%)
- Uttar Pradesh (12%)
The major centres in India where this employment generation would take place are AP, TN, UP, Kerala, Maharashtra and Karnataka.

EXPORTS OF FOOD PROCESSING RELATED COMMODITIES

Despite being one of the leading producers for several agricultural commodities, India’s share in global agricultural exports stand at 1.5 percent, of which, value added processed food exports accounts for only 0.03 percent.

All agricultural produce when exported undergo an element of processing. Hence all edible agricultural commodities are included in the chart given below.

CHART – II.5 SHOWING VALUE OF EXPORTS OF FOOD PROCESSING RELATED COMMODITIES

The value of the exports in the sector has been showing an increasing trend. Major markets for Indian processed food products have been USA, UK, Germany, Japan, Belgium, the Gulf countries, Egypt, China, Indonesia and Sri Lanka.
FDI POLICY FOR FOOD PROCESSING SECTOR

FDI is permissible for the processed food products under 100% automatic route (except for items reserved for micro, small and medium enterprises, where FDI is permissible under automatic route up to 24%) subject to applicable laws/regulations/securities and other conditions. The government has considerably relaxed restrictions on the flow of investment and technology coming from within and outside the country in an endeavour to increase the incomes of farmers, create employment opportunities and promote faster rural industrialization. The Indian food processing industry is becoming an attractive FDI destination and there has also been a growth in the inflow of foreign direct investments flowing into the food processing industry.

TABLE – II.6

TABLE SHOWING INFLOW OF FDI INTO FPI

<table>
<thead>
<tr>
<th>Year</th>
<th>FDI (Rs.in million)</th>
<th>Percentage of FDI</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000-01</td>
<td>1981.30</td>
<td>6.25</td>
</tr>
<tr>
<td>2001-02</td>
<td>10361.20</td>
<td>32.67</td>
</tr>
<tr>
<td>2002-03</td>
<td>1765.30</td>
<td>5.57</td>
</tr>
<tr>
<td>2003-04</td>
<td>5108.50</td>
<td>16.11</td>
</tr>
<tr>
<td>2004-05</td>
<td>1740.80</td>
<td>5.48</td>
</tr>
<tr>
<td>2005-06</td>
<td>1829.40</td>
<td>5.77</td>
</tr>
<tr>
<td>2006-07</td>
<td>2220.00</td>
<td>7.00</td>
</tr>
<tr>
<td>2007-08</td>
<td>3125.20</td>
<td>9.85</td>
</tr>
<tr>
<td>2008-09</td>
<td>3585.00</td>
<td>11.30</td>
</tr>
<tr>
<td>Total</td>
<td>31716.70</td>
<td>100.00</td>
</tr>
</tbody>
</table>

Source: MOFPI Annual Reports 2008-09
FDI is permitted through the following forms of investment,

1. Financial Collaborations
2. Joint Ventures and technical collaborations
3. Capital markets via Euro issues
4. Private placements or preferential allotments

The MOFPI has asked for 100 percent FDI in the retail sector. This can help boost exports of processed foods, since the domestic market alone cannot create sufficient demand for processed foods. If the FDI is allowed, retail chains would bring in foreign expertise and technology, which would benefit the farmers. The FDI in retail can therefore boost the prospects of the processing industry. (Source: Ibid.,)

FOOD PROCESSING INDUSTRY-GROWTH POTENTIAL

Programs to increase the output of Indian agriculture without corresponding investments in processing facilities is likely to lead to a mismatch resulting rural distress and decline in farmer’s income. The single most important step for improving the bargaining capacity of the farmer and his economic sustainability is to add value to his produce and enable him to produce according to the requirements and standards demanded by the market.
It is essential to build sustainable supply chains, which will link the farmer to the processing and marketing centres seamlessly. Food Processing Industry in India is a potential source for driving rural economy as it brings synergy between industry and agriculture. A developed food processing industry is expected to lead increase in farm gate prices translating into increased rural incomes, reduces wastages, ensure value addition, promote crop diversification, generate employment opportunities as well as export earnings. With such a large and diversified production base coupled with low manpower cost and modern technology, the Indian Food Processing Industry is poised for growth, if the advantages are leveraged optimally.

The Indian food market in 2006-07 has been estimated at around US $200 billion and slated to reach US$ 310 billion in 2015. Food retail, dominated by around 5 million retail outlets in India, is also likely to grow from around US$ 75 billion in 2007-08 to US$ 150 billion by 2025. In comparison, the world food industry, which stands at $175 billion, is expected to grow up to $400 billion by 2025. As per Mc Kinsey study ‘India is likely to become the second largest dairy products producer, next to the US, in the years to come. Food prices in India are the lowest in the world. India has the highest per capita consumption of sugar in the world and it is still growing. The agriculture sector has moved into high value crops in the last 10-15 years’.

The global processed food industry is forecast to reach a value of US $ 1,621 billion by 2012. The compound annual growth rate (CAGR) of the market size during 2007-2012 is predicted to be 3.3%. However the slowdown in overall global exports following the recession in the global financial markets is also likely to affect the processed food industry. The processed food industry, which is a working-capital intensive industry may face difficulties in investing in critical infrastructure such as creation of value chain, technology up gradation, and investments in R & D, which may result in difficulties in complying with
international food regulations and other non-tariff barriers imposed by the developed country markets. Though the processed food product exports from India hold significant potential, the medium term outlook is grim due to several factors, including the pressure on cost competitiveness.

Nonetheless, the government of India, in line with its vision 2015 for the food processing sector, in its 11th Five Year Plan proposes to give greater thrust on infrastructure development, which will include setting up of Mega Food Parks, cold chain infrastructure, value added centres and packaging centres. The emphasis is on building strong linkages with agriculture and horticulture, enhancing project implementation capabilities, increased involvement of private sector investments and support for creation of rural infrastructure to ensure a steady supply of good quality agriculture/horticulture produce.

The government of India has taken several initiatives to promote investments in this sector 100% FDI as well as technology transfer is allowed in this sector and grants are given by the government for setting up common facilities in Agro Food Park.

Institutional and credit support is provided for new industries in fruits and vegetables and income tax rebate is allowed for 100% of profits for first 5 years and 25% for next 5 years. Central excise duty on meat, poultry and fish is reduced to 8%, customs duty on packaging machines has also fallen. Custom duty on food processing machinery and its parts is reduced from 7.5% to 5%. Custom duty on packaging machinery is reduced from 15% to 5% and on reefer vans from 20% to 10%. Diary machines are completely exempted from central excise duty.77 Government expects a 100 fold growth in food processing in line with the high growth experienced by the service sector. The future potential of the Food Processing Industry is shown in Table as follows:

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77 Source: Ministry of FOOD PROCESSING INDUSTRY, India; Indian Brand Equity foundation report, 2008
TABLE – II.7

TABLE SHOWING POTENTIAL OF PROCESSED FOODS

(Rs. In billions)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Processed foods</td>
<td>4600</td>
<td>8200</td>
<td>13500</td>
<td>10%</td>
</tr>
<tr>
<td>Primary processed foods</td>
<td>2800</td>
<td>4200</td>
<td>5700</td>
<td>7%</td>
</tr>
<tr>
<td>Value-added foods</td>
<td>1800</td>
<td>4000</td>
<td>7800</td>
<td>15%</td>
</tr>
</tbody>
</table>

Share of Value-added products in processed food consumption

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Share of Value-added products in processed food consumption</td>
<td>38%</td>
<td>49%</td>
<td>58%</td>
<td></td>
</tr>
</tbody>
</table>

Source: www.indianembassy.pl

India is strategically located at centre of Middle East and south east with long coast line and proper sea route connectivity. With enough raw material availability for long period, India provides an attractive destination for multinational food companies to setup processing facilities in India both for Indian market as well as for export.

Growth drivers for food processing industry

A careful analysis of various factors which are likely to increase the demand for processed food in the coming years termed as growth drivers of food processing industry is as follows:

1. Increasing spending on food products and demand for functional foods: Now a day’s food and grocery dominates the total retail spend of the consumers. While rural consumers spend around 53% of their total consumption expenditure on food, urban
India spends 40% of their retail spend on food items thus offering huge opportunity for processed food products.

CHART II.7 DEPICTING POTENTIAL MARKET FOR PACKAGED FOOD PRODUCTS

2. Increasing nuclear families and working women: There is a total shift of Indian family system from joint families to nuclear families which lead to possibility for dependence on processed food products. Hitherto the number of working women, as a percentage of the total female population has grown from 12% in 1961 to close to over 25% in 2010 resulting in demand for convenience food which automatically sequences on dependence on processed food products.

3. Changing demographics: The median age of Indian population is 24 years and approximately 65% of Indian population is below 35 years of age. The large population of working age group forms a wider consumer base for processed products.

4. Higher disposable income is a sequel to high economic growth for the Indian middle class, which is switching over to healthy and processed products. It is estimated that disposable income is set to rise at an average rate of 8.5% by 2015. Also the middle class is estimated to reach a size of 582 million from its current size of 50 million by 2015.
5. Growth of organized retail and private label penetration: It is estimated that the total food and grocery retail space will grow at a CAGR of 6% over 2006-2011, with the organized share likely to increase from less than 1% currently to 6-6.5%. This will translate into more business opportunity for processed products as well as provide forward linkage to the industry.

6. Increasing urbanization: Balanced growth is one of the objectives of Indian democracy wherein the government encourages urbanization which consequently changes the lifestyle and aspirations of the people in rural India, now converted urban. This causes to give a push to demand for food processing industry.

IMPEDIMENTS TO THE GROWTH OF FOOD PROCESSING SECTOR:

While the food processing sector offers several opportunities for growth and is blessed with many growth drivers, there are several impediments to growth which can be discussed as:

1. The Agricultural Produce Marketing committee Act has been amended in 25 states/UTs to increase the return to the farmers, it still discourages direct marketing arrangement between farmer and processor. The processor is required to obtain license and liable to pay market fees without using any of the mandi infrastructure. Some states did not clearly outline the policies on contract farming/direct marketing. Thus APMC Acts of different states have been stumbling block for development of food processing industry.

2. There is no robust policy formulation for growth of food processing industry at the central level. Though the central government developed a vision document assessing the need for the growth of the FOOD PROCESSING INDUSTRY, at the state level there is no definite action plan i.e., well spelt policy.
3. An outlay of Rs.4031 crores was envisaged in 11th plan for development of food processing industries but only Rs. 1132 crores have been spent. Further vision 2015 envisaged public expenditure of Rs. 10,000 crores by 2015 but the trend is much below the desired level which is essentially an impediment to the development of FOOD PROCESSING INDUSTRY.

4. After independence the Essential Commodities Act (ECA) 1955 was devised to control the production, supply and distribution of essential agricultural commodities and to ensure availability of food products. This essentially hampers the growth of the agricultural sector and promotion of food processing industries.

5. Primary agricultural commodities including fruits and vegetables are mostly exempted from tax, processed food commodities are subject to variety of taxes. Incidence of taxation acts as a disincentive for investment in the sector. In most of the states low value added food products are exempted from VAT but high value added food products are subject to a 12.5% rate in many states. Along with VAT, other taxes such as purchase tax, entry tax, octroi etc levied on food products. Central Excise Tax (CET) is levied on certain food products as:

<table>
<thead>
<tr>
<th>Products</th>
<th>Central Excise Tax (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sugar, confectionary, RTE food and instant food mixes</td>
<td>8</td>
</tr>
<tr>
<td>Other confectionary products</td>
<td>16</td>
</tr>
<tr>
<td>Aerated drinks</td>
<td>16</td>
</tr>
</tbody>
</table>

Also packaging material (OTS cans, aseptic packaging paper and aseptic bags) which constitutes around 35-50% of the production cost of packaged food attracts excise duty of 8%. Thus, cumulative incidence of these taxes make processed foods costly and much beyond the reach of the common man.
It is mandatory for imported processed products to have at least two-thirds of their shelf life remaining on reaching port. In case of snack food items, import tariffs are as high as 30-65% which causes to increase its price in the market.

6. Lack of infrastructure for post harvest handling and storage, absence of cold chain facilities and fragmented supply chain of food products are the critical reasons which lag the growth of food processing industry in the country.

7. R & D in the food processing sector is in traditional lines with less emphasis on the preferences of the market. Further this research is undertaken by the universities and the institutions with very little involvement of the industry. The role of concerned industry is pivotal to research activity which is very much negligent in the food processing sector.

8. The Indian crop production system is traditional and is termed as subsistence agriculture. As a result of this the crops grown are not in tune with market and processing requirements. For example most of the fruits grown are not amenable to long duration storage. The tomatoes grown in our country are not amenable for competitive processing.

9. A survey by FICCI estimates that there is shortage of skilled manpower right from farming to processing. Besides CFTRI there are very few institutions which provide qualified manpower for food processing sector.

10. The current legislative requirements have put tremendous emphasis on food hygiene, GMP, HACCP and nutritional labeling in the entire food chain. However most of the unorganized players in FOOD PROCESSING INDUSTRY do not adhere to quality standards resulting in minimal share in the world trade.

11. Though FOOD PROCESSING INDUSTRY is in the priority sector, easy credit facilities are not available to this sector.
12. Low share of sale of food products through organized retail, which are the usual 
drivers of quality, scale and integration. Globally 72% or more of the food sales is 
through organized retail whereas, the share of India is just one percent. The high 
proportion of unorganized sale leads to low product quality, low hygiene levels and 
safety causing to reduce the share in the global trade.

13. Socio-cultural factors such as preference in India for freshly plucked/cooked food, 
variation in food habits across the country, easy availability of raw materials for 
cooking, preference for consumption of food at home etc.

14. Low income and the high share of basic food in the household consumption 
expenditure acts as a deterrent in the growth of the food processing sector.

15. Low inflow of FDI, in spite of the permission for 100% FDI in the food processing 
sector.

16. The Tax levels on the processed foods in the country are among the highest in the 
world. No other country imposes excise duty on processed foods. Indian consumers 
have high price sensitivity and hence a reduction in cost is imperative for raising 
demand and consumption of food products. Since the net impact of various taxes and 
duties occurs directly on the price the off take of processed food items remains quite 
low. This again leads to low demand and consequently to low capacity utilization 
and cost escalation.

17. India is also viewed as an unpredictable and unreliable source of food and agro 
products. Majority of the food units are engaged in primary processing and 
production base of the secondary and tertiary processed food is very low. 
Development of brands is very poor. A single legal code to govern food processing 
has become essential. The government proposed a Processed Food Development Act 
at the all-India level. However it is not materialized.
18. Major bottleneck is the lack of demand for processed foods in the country due to the tastes of the people.

19. The central government has taken some steps to deregulate and encourage the sector after 1991. However, the role of the states is vital. The government of Andhra Pradesh released a policy in November 2003 with the objective of increasing the impact of the central assistance, to assist the existing food processing units and enable them adjust to a competitive market, a critical mass of investment by developing best infrastructure for all food processing units in the state. The government of AP and Government of India jointly have set up 4 Agri-Export zones in the state and also announced progressive measures. There are no major initiatives in the policy and still can be called a good beginning. As against the robust growth at the All-India level, the growth rate in net value-added in the nineties was almost the same as that in the eighties in the state.

20. The entire sector was deregulated and no license is required except in the case of alcoholic beverages. Automatic approval for foreign investment up to 100% equity in food processing industries is available except in few cases. Government of AP formed four AEZs for different fruits and vegetables. Though agro-processing is identified as one of the growth engines in vision-2020, the policy support at state level has been slow. The government of AP has released a food processing policy through its dept of industries and commerce in Nov, 2003.

SECTORAL OVERVIEW OF FOOD PROCESSING INDUSTRY:

The ministry of food processing industries is concerned with a number of food processing sectors such as fruit and vegetable processing, grain processing, meat process, poultry and egg processing, milk products, fish processing, consumer food industries.
FRUIT AND VEGETABLE PROCESSING

The utilization of fruits and vegetables processing is estimated to be around 2.2% of the total production. There is a positive growth in ready-to-serve beverages, fruit juices and pulps, dehydrated and frozen fruits and vegetable products, tomato products, pickles, convenience veg-spice pastes, processed mushrooms and curried vegetables.

India is the second largest producer of fruits and vegetables. India’s current production of fruits amount to about 58 million tons and vegetables production amount to 112 million tons, accounting for 9 percent and 14 percent of the world’s total fruits and vegetable, respectively.

CHART II.8 SHOWING A FORM OF PEA-MADE SOUP WHICH IS AN OUTCOME OF VEGETABLE PROCESSING

However the domestic consumption of value added fruit and vegetable products is low compared to the primary processed food and fresh fruits and vegetables which is possibly because of high incidence of tax and duties. Constraints in infrastructure, non-adoption of cost effective technology, inadequate farmers-processors linkage, tax on packing material,
lower capacity utilisation. The smallness of units and their inability for market promotion is another main reason for inadequate expansion of the domestic market.

However the government is always a step ahead in encouragement towards development of fruit and vegetable processing industries and as such gave fresh impetus to processing of fruit and vegetables by allowing under Income Tax Act, 100% deduction of profit for first five years for new upcoming fruits and vegetables processing units. In 2011-12, the ministry has released grant of Rs. 37.36 crores to 220 applicants.

MEAT PROCESSING:

India has the largest livestock population in the world. Processing of meat is largely for exports. The total processing capacity in India is over 1 million tons per annum.

In meat and meat processing sector, poultry meat is the fastest growing animal protein in India. Indian consumer prefers to buy freshly cut meat from the wet market, rather than processed or frozen meat. Due to the emerging health threats of the diseases communicable to human through eat, the meat consumers are more vigilant towards the wholesomeness of the meat and demanding meat and poultry products processed in clean and sanitary environment.

A mere 6% of production (about 1,00,000 MT) of poultry meat is sold in processed form. Of this, only about 1% undergoes processing into value added products (ready-to-eat/ready-to-cook). Processing of large animals is for the purpose of exports. Indian buffalo meat possesses strong demand in international markets due to the lean character and near organic nature. Of the total production capacity available in India, only 40-50% is utilized.

Processing meat products is licensed under Meat Food Products, (MFPO) 1973 which is implemented by MOFPI with effect from 14-05-2004. The main objective of the order is to regulate production and sale of meat food products through licensing of manufacturers,
enforce sanitary and hygiene conditions prescribed for production of wholesome meat food products, exercise strict quality control at all stages of production of meat product, fish products including chilled poultry etc..

**CHART II.9 SHOWING PROCESSED MEAT PACKAGES IN A SUPER MARKET**

The ministry of food processing industry is providing financial assistance by way of grant-in-aid to develop necessary infrastructure for processing of meat and meat food products for domestic market as well as for export market. In a sequel the ministry has extended Rs.8.68 crores financial assistance to 38 units during 2009, 2010, 2011.

**DAIRY PROCESSING:**

It is a matter of pride that India is the largest producer of milk in the world. It maintains its top position since 1988. India has a unique pattern of production, processing and marketing/consumption of milk, which is not comparable to any large milk producing country in the world.

Approximately 70 million rural households in the country are engaged in milk production. Over 11 million farmers are organized into about 0.1 million village dairy co-
operative societies. The cumulative milk handled by DCS across the country is about 18 million kg of milk per day. These co-operatives form part of a national milk grid which links the milk producers throughout India.

The ministry of food processing industry is promoting organized dairy processing sector to meet upcoming demands of processed dairy products and helping to identify various areas of research for future product development and quality improvement by way of providing financial assistance to the dairy processing units.

**CHART II.10 SHOWING PROCESSING OF MILK INTO CHEESE IN AN INDUSTRY**

In India current annual growth rate in milk production is pegged between 4 to 6%. This is primarily due to the initiatives taken by the Operation flood programs in the organized milk producers into co-operatives; building infrastructure for milk procurement, processing and marketing; and providing financial, technical and management inputs by the Ministry of Agriculture and Ministry of Food Processing Industries to turn the dairy sector into viable self-sustaining organized sector. About 35% of milk produced in India is processed.
India has huge potential in ethnic products. Of the total milk produced in India, 46% is used as liquid milk, 4% for processing western dairy products and as much as 50% for processing into traditional dairy products.

Gross margins on ethnic products, excluding cost of marketing and distribution for the products listed above range from 12% to 38%

India’s current milk production stands at 101 million tons. With over 650 dairy plants in the cooperatives, private and government sectors in the organized sector (large scale dairy plants) processes about 13 million tons of milk annually, while the unorganized sector (halwais and vendors) processes about 22 million tons of milk per annum.

FISH PROCESSING:

With its long coast line of over 8000 kilometers, 50600 square kilometers. Of continental shelf area and 2.2 million sq.km of Exclusive Economic Zone, India is endowed with rich fishery resources.

The processing segment of the fisheries sector in India is entirely export-oriented. Fish processing for domestic consumption is rare, as consumers prefer to purchase fish from wet markets and process it at home. Industrial processing is primary, even for exports, comprising of conventional block frozen products, individual quick processing is primary, even for exports, comprising of conventional block frozen products, individual quick frozen products (IQF), minced fish products like fish sausage, cakes, cutlets, pastes, squirmy, textures products and dry fish etc.

Considerable infrastructure facilities for processing of marine food products have been developed over a period of 50 years. However, a large number of processing and freezing units are required to release the potential of the sector. Ministry of food processing
industry extends financial assistance for setting up/technology upgradation/modernization of fish processing units.

**CHART II.11 SHOWING PROCESSED SEA FOOD-FISH, SQUID, PRAWN BALLS, SIMULATED CRAB STICKS (SURIMI)**

Presently, about 500 units are engaged in production of frozen fish with a total storage capacity of about 1,35,000 tons. There are over 10,000 tons, out of which, 150 units are approved for export to EU. Besides, there are 12 squirmy units, 5 canning units and 471 units for pre-processing and dry fish storage.

**GRAIN PROCESSING:**

The potential for value addition is high in both wheat and rice, most produce is subjected to primary processing. More than 65% of wheat is converted into ‘Atta’ (wholegrain flour) produced by unorganized player (through small milling units called ‘chakkis’) as well as by organized roller flour mills. Atta is in-turn consumed as chapattis or rotis.
The grain processing industries include milling of rice, wheat and pulses. For the adequate and focused growth of the sector, the ministry is providing financial assistance to the grain processing industries for its setting up/expansion/modernization in the form of grant before their commissioning.

**CHART II.12 SHOWING GRAIN SILOS**

The main aim of the scheme is to promote the food processing sector with respect to adoption of modern technology, to increase the quality of the product, reduce cost of production and generate employment in addition to reduction of wastage, value addition, fortification of food etc.

Oil Milling Sector

India is a leading player in edible oils, being the second largest importer next to China and the third largest consumer after China and the EU. India consumes around 11 million tons of edible oils. Together, groundnut, soya bean and rapeseed/mustard account for over 80% of the output of cultivated oilseeds in India. The price of edible oils is the biggest driver for consumption. There has been a continuous shift to cheaper oils such as palm oil and soya bean oil. Even within the branded segment, growth is being driven by brands in the lower
priced brands. Within instances of adulteration being reported, in the unbranded loose oil category, a gradual but steady shift towards packaged and branded oil has been taking place in recent years.

Edible oil demand is expected to grow by 5.5 to 6% per annum over the next ten years which translates into consumption of 20.2 million tons by the end of 2015. Domestic price support policies have favoured the production of crops that compete with oilseeds such as rice and wheat, resulting in waning oilseed production.

It is recommended that the area under oil palm cultivation is increased to 2,00,000 ha by 2015 with major focus in AP, Karnataka and Tamil Nadu, in order to enhance local production.

Efficiency gains in the oil-seed processing sector have also been hampered by poor infrastructure and policies restricting economies of scale in processing plants. During the current financial year (up to 05-01-2012), Ministry has released grant-in-aid of Rs.13,392 crore to 89 units for setting up/modernization/expansion of edible oil milling industries, under the decentralization pattern of the scheme.

Primary processing constitutes 96 percent of total grain processing and the remaining is accounted for by secondary and tertiary processing sectors. India currently has total rice milling capacity of 186 million tons, over 500 large flour mills and about 10,000 pulse mills. India approximately has 1,50,000 oil mills, 779 solvent extraction units, 810 refinery units and 127 vanaspati units providing direct and indirect employment to one million people.

CONSUMER FOOD INDUSTRIES:

Consumer Food Industry includes pasta, breads, cakes, pastries, rusks, buns, rolls, noodles, corn flakes, rice flakes, ready to eat and ready to cook products, biscuits etc. Bread and biscuits constitute the largest segment of consumer foods. Their production is about 4.0
million tons per year. Manufacturing of bread is reserved for SSI sector. Out of the total production of bread, 40% is produced in the organized sector and the remaining 60% in the unorganized sector. Similarly production of biscuits in the organized sector is about 80% and quantity of biscuits produced in the unorganized is about 20%. The bakery industry is among the few processed food segments whose production has been increasing steadily in the country in the last couple of years. Bakery products include bread, biscuits, pastries, cakes, buns, rusk etc. The Ministry has released grant of Rs.22.79 crore to 168 units (up to 31.12.2011) in 2011-12.

CHART II.13

SHOWING FACTORY AUTOMATION- ROBOTICS PALETTIZING BREAD

AERATED SOFT DRINK:

The soft drinks constitute the 3rd largest packaged food regularly consumed after packed tea and packed biscuits. The aerated soft drinks industry in India comprises over 100 plants across all States. It provides direct and indirect industry related employment to over
1,25,000 employees. It has attracted one of the highest foreign direct industries in the country. It has strong forward and backward linkages with glass, plastic, refrigeration, sugar and transportation industry. Installed capacity of sweetened/aerated water as on 01-01-2006 is reported to be 29.60 lakh tons per annum.

PACKAGED DRINKING WATER:

There are 218 companies, which have been granted license for manufacturing packaged drinking water and packaged mineral water. There has been a spurt in growth for the last 3-4 years, which can be largely attributed to a range of various packaged sizes to suit the consumers. 80% of the packaged water sale comes from the bulk containers (5 liters and above)

ALCOHOLIC BEVERAGES:

India is the 3rd largest market for alcoholic beverages in the world. The demand for spirits and beer is estimated to be around 373 million cases. India, apart from recording strong growth, also provides attractive profit margins due to the consolidated structure of the industry. The industry has about 400 brewers of which the top 10 account for only 45% of the market. This has resulted in low profit margins for Chinese beer companies. In contrast the top 2 beer players in India account for about 75% of beer sales in India and the industry will undergo further consolidation in the near future. There are 12 joint venture companies having a licensed capacity of 33919 kilo-liters per annum or production of grain based alcoholic beverages. 56 units are manufacturing beer under license from the government of India. The ministry has sanctioned a wine park at Vinchur, Nasik.

While the average industry growth is about 7%, several states have recorded faster growth rates. The four South Indian states account for about 45% of Indian beer consumption, and are clocking a robust of about 8% per annum.
The food processing industry is mainly unorganized with 75 percent of the processing units belonging to the unorganized sector. The organized sector is relatively small, with around 5300 fruit and vegetable processing units, over 500 fish processing units, over 500 flour mills, nearly 200 meat processing units and numerous dairy processing units at state and district levels.

With a total arable area of around 180 million ha, India produced 230 million tons of food grains, 125 million tons of vegetables, 63 million tons of fruits, around 4 million tons of spices. India also produced 105 million tons of milk and 7 million tons of fish. India has a livestock population of 485 million, poultry population of 489 million and egg production of 45,200 million.

Of the country’s total agriculture and food production, only 2 percent is processed, which is much lower when compared to countries such as USA (65%), China (23%) and Brazil (70%). The level of processing in India is estimated to be 37% in dairy sector, 26% in fisheries sector, 2% in fruits and vegetables sector and 1% in meat and poultry sector. Value addition is only to the tune of 26%. Indian food processing market is estimated to be around Rs.4600 billion.

FOOD PROCESSING INDUSTRY IN ANDHRA PRADESH

Located in Southern part of India, Andhra Pradesh is bounded in the North by Orissa and Madhya Pradesh, West by Maharashtra and Karnataka, in the south by Tamilnadu and east by Bay of Bengal. State has the coast line of 974 kilometers. The state came into existence on November 1st, 1956 with the merger of Hyderabad and Andhra states.

Andhra Pradesh is considered as ‘rice bowl of India’. It is synonymous with ‘Annapurna’ the land of plentiful harvests on nutritional security. “It is also a veritable ‘akshyapatra’ or vessel of plenty of horticultural produce. With enterprising farming community, varied agro-climatic zones, variety of soil types coupled with endemic irrigation
sources, the state is a front running producer of a variety of horticultural wealth”. Around 23% percent (average contribution) of Andhra Pradesh Gross Domestic Product comes from agriculture and it provides employment to around 65 percent of the State’s population. The State enjoys a position of pre-eminence in respect of crop production. Andhra Pradesh is endowed with bountiful natural resources with good soil and a diversified cropping pattern. The edge comes from major irrigation systems fed by rivers like Godavari, Krishna, Thungabhadra, Penna, Nagavali, Vamsadhara etc. Agriculture in the State has made rapid strides taking the annual food grains production from 13.4 million tons in 2004-2005 to 20.4 million tons in 2009-10. The new emphasis on agriculture will be on identifying and developing sectors with high potential for growth; building strong agro based industries, developing agriculture in rain fed areas and spurring growth through policy reforms. The major growth in agriculture, rice is a large contributor to Andhra Pradesh’s economy (contributing a quarter of agriculture (GSDP) that even small improvements in the sector will create a large impact. Since rice growing is the primary occupation of a large proportion of the state’s agriculture labour, its further development will increase rural incomes and reduce poverty. To achieve this vision the State of Andhra Pradesh will aggressively pursue strong agriculture growth, including employment generation, and target levels of investment needed.

It accounts for about 8 percent of the country’s net sown area and around 7 percent of the country’s food grain production. The state with its seven agro-climatic zones and varied soils, produce various crops. Andhra Pradesh holds first rank in area and production of mango, oil palm, chillies, turmeric, second rank in citrus and coriander, third rank in cashew, fourth rank in flowers and fifth rank in grapes, banana, ginger and guava.

Agro-Climatic Conditions

The state of Andhra Pradesh is adversely placed with respect to rainfall and soils. It has a hot and humid tropical climate that varies from semi-arid to sub-humid, with an average rainfall
of about 900 mm as against the national average of about 1,150 mm. The state is dominated by red soils (less fertile), covering about 65 percent of area, followed by black soils (medium fertile, 25 percent) and alluvial soils (most fertile, 10 percent) as against 80 percent of black and alluvial soils at the all-India level. The state is divided into 23 districts. Based on rainfall and soil, the districts fall under three popularly known regions:

• Coastal region: Srikakulam, Vizianagaram, Visakhapatnam, East Godavari, West Godavari, Krishna, Guntur, Prakasam, and Nellore.

• Rayalaseema region: Anantapur, Chittoor, Kadapa, and Kurnool.

• Telangana region: Mahabubnagar, Medak, Nizamabad, Adilabad, Karimnagar, Warangal, Khammam, Nalgonda, Ranga Reddy, and Hyderabad.

These regions have high heterogeneity with respect to soil, rainfall, and production patterns. The average annual rainfall is lowest (650 mm) in Rayalaseema region and highest in the Coastal region (1,050 mm). Coastal Andhra is also the most fertile of the three regions in terms of soils and irrigation potential and has favorable conditions for growing irrigated crops. Rayalaseema (in the rain-shadow area) and several districts of Telangana region are particularly drought-prone.78

ECONOMY OF ANDHRA PRADESH

The Economy of Andhra Pradesh is mainly driven by Agriculture. Two important rivers of India, the Godavari and Krishna, flow through the state, providing irrigation. Rice, sugarcane, cotton, chilly, mango and tobacco are the local crops. Recently, crops used for vegetable oil production such as sunflower and peanuts have gained favour. There are many multi-state irrigation projects in development, including Godavari River Basin Irrigation projects and Nagarjuna Sagar Dam, the world’s highest masonry dam.79

78 (District names as per Government of Andhra Pradesh, Statistical Abstract of Andhra Pradesh 2005.)
79 (Source: Agriculture department of Andhra Pradesh (http://agri.ap.nic.in) (Key sectors of Andhra Pradesh (http://www.apind.gov.in/indussectors.html))
Andhra Pradesh GDP for 2009 was estimated at $62 billion in current prices. This is a chart of trend of GDP of Andhra Pradesh at market prices estimated by the Ministry of Statistics and Program Implementation with figures in millions of Indian Rupees. Accordingly the state ranks fourth in terms of overall GDP and fourth in per capita gross state domestic product among the major states of India.

### TABLE – II.9

**TABLE SHOWING GDP GROWTH RATE IN ANDHRA PRADESH**

<table>
<thead>
<tr>
<th>Year</th>
<th>State GDP (Rs. MM)</th>
<th>In Constant Dollars ($ Billions)</th>
<th>Growth Rates in Constant Dollars</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>81910</td>
<td>$10.2</td>
<td>-</td>
</tr>
<tr>
<td>1985</td>
<td>152660</td>
<td>$15.2</td>
<td>50%</td>
</tr>
<tr>
<td>1990</td>
<td>333360</td>
<td>$25.64</td>
<td>67%</td>
</tr>
<tr>
<td>1995</td>
<td>798540</td>
<td>$124.2</td>
<td>-4%</td>
</tr>
<tr>
<td>2000</td>
<td>1401190</td>
<td>$33.2</td>
<td>37.5%</td>
</tr>
<tr>
<td>2007</td>
<td>2294610</td>
<td>$48.2</td>
<td>45.5% (7 yr)</td>
</tr>
<tr>
<td>2009</td>
<td>$62</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### SPECIAL ECONOMIC ZONES IN ANDHRA PRADESH:

Special Economic Zones declared in the state are 68 in Telangana, 28 in coastal Andhra and 7 in Rayalaseema.81

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80 [http://mospi.nic.in/6-gsdp-cur-9394ser.html](http://mospi.nic.in/6-gsdp-cur-9394ser.html)

81 [http://sezindia.nic.in/HTMLS/about.htm](http://sezindia.nic.in/HTMLS/about.htm)
DEMOGRAPHICS OF ANDHRA PRADESH:

Andhra Pradesh gross state domestic product for 2005 is estimated at $ 62 billion in current prices. Andhra Pradesh is a predominantly service economy because 49 percent of the total Gross Domestic Product comes from the service sector and Industry accounts for 27 percent of Gross Domestic Project whereas Agriculture accounts for 24 percent. The state accounts for about seven percent of all new investments in the country. The state ranks fourth in terms of attracting Foreign Direct Investment.  

ECONOMIC STATISTICS:

1. Investor profile: The State Government Investment is to the extent of 48.7%  
   Foreign Investment is to the extent of 21.2%  
   Indian Government investment is to the extent of 30.1%  

2. State-Priority Areas: The State priority areas are Food processing, software exports,  
   Financial services, electronics, textiles and tourism.  

3. Investment strengths: It is the fourth largest market in the nation which has relatively high purchasing power and can be lauded for its improved governance and administration and overall it can be credited as a reform-oriented state.  

4. Infrastructure: The state is well connected by road, rail, air and sea. Vishakapatnam is a major port in the state. Hyderabad, Tirupathi and Vishakapatnam are air-linked. Hydel and Thermal power projects are coming up in the state which is expected to generate additional power capacity in the state.  

5. Power: The state was plagued with transmission and distribution losses, leading to a power crunch. It initiated reforms in the power sector. The installed power capacity of the state is 13920.58 MW.  

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6. Industrial Infrastructure: There are 272 Industrial estates and industrial development areas in the state, covering an area of 14700 hectares. The State Government is in the process of developing Industrial parks at different places, for specific groups of industries. The existing parks are software parks at Hyderabad, Hitech city for software units, Apparel park at Gundlapochampalli, Export promotion park at Pashamylaram, Vishakapatnam Export Processing Zone, Bio-technology park at Turkapally. Food Parks in three main regions of the state namely Telangana, Andhra and Rayalaseema which are set up catering to specific processing lines.

7. Agriculture: Agriculture is the main occupation and 62 percent of population is engaged in agriculture and related activities. Small and Marginal farmers are the major land holders and account for 81 percent of the holdings. The area under cultivation by small and marginal farmers is only 42 percent. Rice is the major food crop and staple food of the state. Other important crops are Jowar, Bajra, Maize, ragi, small millets, pulses, tobacco, cotton and sugar cane. The state has 23 percent area covered with forest. Agriculture has been the chief source of income for the state economy. Four important rivers of India, the Godavari, Krishna, Penna and Thungabhadra flow through the state, providing irrigation. Agriculture plays a pivotal role in the economy of Andhra Pradesh and the better performance of this sector is vital for inclusive growth. There have been significant changes in the structure and performance of the agrarian economy in the state. In recent years, the state has also been facing a crisis in agriculture with a high incidence of suicides by farmers. Government of Andhra Pradesh has brought an approach paper on agriculture as a part of its series of approaches as seen through vision 2020. Approach paper is strongly influenced by a model that was followed by United States of America, Europe and Japan in late 50s, an approach that decimated family farms in those countries and turned agriculture into an industry.
8. Industries: Several major industries are in operation around Hyderabad, which has now been nicknamed as Cyberabad due to its information technology foray and location of major software industries in the city. Another industrial location is Vishakhapatnam which is also one of the major sea ports of India.

In recent times, Economy of Andhra Pradesh has been showing definitive positive growth trends and is inching close towards national trends. Agricultural sector which was rather sluggish during 10th plan period showed definite improvement and recorded a growth rate in excess of 7% during first four years of 11th plan.

Referring to Industrial development Governor Narasimhan said the state was able to achieve a growth rate of 9.22% as against national average of 7.16% despite slowdown of the economy at the global and national levels. It is notable that Food Processing Industry is going to play a vital role in industrial development. The industries in food products contribute 29.36 percent to the total industrial production in the state.

9. Gross State Domestic Product: The Gross State Domestic Product at current prices (1999-2000) for the year 2009-2010 is Rs.3,64,341 crores as against Rs.3,38,907 crores for 2008-2009 reflecting a growth of 7.5%. During the last five years, the Gross State Domestic Product of Andhra Pradesh on the average recorded 9.14% and higher than the annual growth of Gross Domestic Product at all India level is 8.49% only. Further during the last three years the Gross State Domestic Product of Andhra Pradesh was consistently more than 10% which is a record. In spite of global recession and negative growth trends in the major world economies, the state is able to continue the growth path along with the nation.

10. Food Processing Industry in Andhra Pradesh: Identified as states with ‘great potential’, Andhra Pradesh, Gujarat, Karnataka, Maharashtra and Tamil Nadu are projected to increase their industrial productivity by more than two and half times to
Rs. 50 lakh crore in next five years. Food processing industry in Andhra Pradesh plays a significant role to that extent. There is a large potential for production of a variety of processed products from the fruits and vegetables grown in the state. The post-harvest losses in fruits and vegetables were estimated at Rs. 95,000 crores in the country, whereas in Andhra Pradesh it was Rs. 4750 crore, the loss of fresh produce is 30 percent of the production in the state. Less than two percent of the meat is converted to processed product in spite of having the second largest livestock of buffaloes and sheep in the country. Andhra Pradesh is the country’s largest egg (6933 million eggs per annum) and poultry meat producer. It contributes about a third of the country’s egg and about one fifth of broiler meat production. There are two modern integrated poultry processing plants functioning in the state. The productivity levels are one of the best in the world, with hen-housed egg production of 310 per year and 1:1:8 feed conversion ratio in broilers. (Indian States Economy and Business, Andhra Pradesh, August 2008 (www.ibef.org).

AN OVERVIEW OF FOOD PROCESSING INDUSTRY IN ANDHRA PRADESH

The concept of food parks, agri-export zones, human resource development have been initiated along with several incentive schemes by the central government. The role of the state is considered vital. Hence the centre has urged the state governments to allow exemption for these sectors from sales tax and other local taxes. The state governments have also been advised to have an exclusive department for food processing industries and announce a comprehensive and cogent policy to promote this sector. It has also advised the states to review Agricultural Produce Market Act and offered assistance for setting up regional commodity exchanges, auction houses and terminal markets. Andhra Pradesh Government is set to create a separate department for food processing to promote the sector in a big way. Food processing comes under industries department. Though agro-processing

83 (GOI 2000)
industry is identified as one of the growth engines in Vision 2020, the policy support at state level has been slow.

Food Processing Industry Ministry is encouraging state governments to frame food processing policy aimed at creating rural infrastructure, raising level of food processing, generating farm level employment and overall enabling environment keeping in view the requirement of the states. As per the information given by the minister of state for food processing industry, Charan Das Mahant in a reply in lok Sabha, Karnataka, UP, Bihar, MP, Rajasthan, ANDHRA PRADESH and WB have formulated separate state food processing policy. Punjab, Tripura, Chattisgarh, Haryana and Odisha are having their food processing policy as part of industrial policy. The government of Andhra Pradesh has released a food processing policy through its department of industries and commerce in November 2003. In the policy, some concessions are given on assistance, power, stamp duty, interest subsidy, mechanization, driers, sales tax on inputs and air-freight subsidy. The industries are exempt from payment and market cess. However several needed initiatives are left out in the policy of the state government. State government in June 2005, announced a new food processing policy offering a slew of incentives and concessions which includes, reimbursement of 25% sales tax, interest subsidy of 3% and reimbursement of power cost at the rate of Rs.1 per unit.

FOOD PROCESSING POLICY OF 2005 IN ANDHRA PRADESH:

The Government of India is providing a number of incentives to promote agro-processing. To synchronize with national policies, the state government evolved a Food Processing Policy in 2005.

The objectives of the policy are to:

(i) develop food parks and Agri-Export Zones (AEZs);

(ii) better return to the farmers

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84 The Economic Times: Comments and analysis on consultation with all stakeholders to frame food processing policies, May 16, 2012.
(iii) Elimination or minimization of wastages of agriculture and horticulture produces
(iv) Production of value added processed food not only for indigenous consumption but also for exports.
(v) Encouragement of investment and employment generation in areas where agriculture is still a predominant activity and
(vi) Provision of appropriate linkages between agriculture and industrial sectors.
(vii) harmonize various policies related to agriculture, horticulture, cooperatives, etc.;
(viii) upgrade technology rapidly;

The various incentives and concessions under the policy include the following:

(i) additional 10 percent on the subsidy given by the Government of India to the food processing industry;
(ii) government is providing electricity at subsidized rate of Rs 1.75 per unit for a period of five years for newly established units;
(iii) refund of 50 percent of the stamp duty on land registration etc.;
(iv) 50 percent subsidy on mechanized primary processing equipment for grading, sorting, packing, washing etc.;
(v) 25 percent subsidy on dryers;
(vi) 25 percent airfreight subsidy on actual airfreight incurred for export of perishables;
(vii) a 5 percent interest subsidy on working capital loans up to Rs 200,000;
(viii) sales tax on inputs, other than fuel, used by the food processing industry shall be adjusted against the tax payable, on the sales of the finished products;
(ix) market cess exempted from all food processing industries. However, the government will collect development cess of 0.5 percent on the turnover of the value of finished product for exports and the amount will be utilized for improving the infrastructure for the food processing industry.
(x) establish linkages between research, farmers, and industry;
(xi) create markets for processed foods;
(xii) develop a futures market; and
(xiii) Through Increased use of information technology, the ultimate goal is to give clearance under a single window, and simplify all procedures for inspection, pollution control, etc., leading to a zero inspection regime. Already, the Government of Andhra Pradesh has developed five AEZs to promote export.

The policy will cover the horticulture, agriculture, animal husbandry, fisheries, and agro-food processing industries. In addition, it would cover allied industries such as cold storage units, refrigerated transportation vehicles, food packaging, canning and bottling industries, and the food additives and preservatives industry. Food parks are being set up for processing of poultry products, coarse grains, and spices in Telangana districts; rice products, marine, and horticulture products in coastal Andhra; and vegetable and spice products in Rayalaseema region. For the purpose of this policy, agro-food processing industries are defined and included in the following categories:

1. Fruits and Vegetable Processing
2. Food grain milling/processing
3. Dairy Products
4. Processing of poultry, eggs, meat and meat products
5. Fish processing
6. Bread, oilseed meals (edible) breakfast foods, biscuits, other ready to eat food products, confectionary etc.
7. Processing of sugar
8. Floriculture
9. Cold storage unit
10. Refrigerated transport vehicle and
11. Fruit based ready to serve beverages.
According to the economic survey 2004-2005 tabled in the assembly by the Finance minister, K.Rosaiah the state will be the preferred destination for private investment, both domestic and international. As per annual report of union minister of Food Processing Industries for 2006-2007, Andhra Pradesh is ranked second in the country in terms of financial assistance given by the centre.

TABLE – II.10

TABLE SHOWING STATE-WISE DISTRIBUTION OF INVESTMENT IN DIFFERENT INDUSTRIES OF INDIA

<table>
<thead>
<tr>
<th>States</th>
<th>Food and Beverages</th>
<th>Agro-industry</th>
<th>Manufacturing</th>
<th>All Industries</th>
</tr>
</thead>
<tbody>
<tr>
<td>Andhra Pradesh</td>
<td>1895</td>
<td>785</td>
<td>65125</td>
<td>154890</td>
</tr>
<tr>
<td>Karnataka</td>
<td>1650</td>
<td>158</td>
<td>59625</td>
<td>195125</td>
</tr>
<tr>
<td>Tamil Nadu</td>
<td>1425</td>
<td>610</td>
<td>52547</td>
<td>210450</td>
</tr>
<tr>
<td>Maharashtra</td>
<td>1025</td>
<td>596</td>
<td>52456</td>
<td>225321</td>
</tr>
<tr>
<td>Uttar Pradesh</td>
<td>1152</td>
<td>256</td>
<td>40115</td>
<td>142006</td>
</tr>
<tr>
<td><strong>Total for all</strong></td>
<td><strong>12652</strong></td>
<td><strong>4259</strong></td>
<td><strong>625125</strong></td>
<td><strong>3545258</strong></td>
</tr>
</tbody>
</table>


The above table shows that the investment in the food sector reflects a heavy regional imbalance and only three states-Andhra Pradesh, Tamil Nadu and Karnataka account for the bulk of investments in food and beverage industries. These three states together thus accounted for nearly 40 percent of the investments flowing into the food and beverages sector.

Andhra Pradesh is the second biggest contributor (10 percent) to the net value added in food industries and beverages in the country and first among the South Indian states. The
growth of the food processing industry in Andhra Pradesh during the next ten years is expected to be 15 percent, driven mainly by export demand.

**TABLE – II.11**

**TABLE SHOWING STATE-WISE PROCESSED FOOD INDUSTRY**

<table>
<thead>
<tr>
<th>S.No</th>
<th>States</th>
<th>No. of Units</th>
<th>Percentage of Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Andhra Pradesh</td>
<td>10,183</td>
<td>34.62</td>
</tr>
<tr>
<td>2</td>
<td>Assam</td>
<td>734</td>
<td>2.5</td>
</tr>
<tr>
<td>3</td>
<td>Bihar</td>
<td>433</td>
<td>1.47</td>
</tr>
<tr>
<td>4</td>
<td>Chandigarh</td>
<td>36</td>
<td>0.12</td>
</tr>
<tr>
<td>5</td>
<td>Daman &amp; Diu</td>
<td>5</td>
<td>0.02</td>
</tr>
<tr>
<td>6</td>
<td>Delhi</td>
<td>125</td>
<td>0.42</td>
</tr>
<tr>
<td>7</td>
<td>Pondicherry</td>
<td>42</td>
<td>0.14</td>
</tr>
<tr>
<td>8</td>
<td>Goa</td>
<td>34</td>
<td>0.12</td>
</tr>
<tr>
<td>9</td>
<td>Gujarat</td>
<td>1270</td>
<td>4.32</td>
</tr>
<tr>
<td>10</td>
<td>Haryana</td>
<td>600</td>
<td>2.04</td>
</tr>
<tr>
<td>11</td>
<td>Himachal Pradesh</td>
<td>46</td>
<td>0.16</td>
</tr>
<tr>
<td>12</td>
<td>Jammu &amp; Kashmir</td>
<td>69</td>
<td>0.23</td>
</tr>
<tr>
<td>13</td>
<td>Karnataka</td>
<td>1221</td>
<td>4.15</td>
</tr>
<tr>
<td>14</td>
<td>Kerala</td>
<td>1110</td>
<td>3.77</td>
</tr>
<tr>
<td>15</td>
<td>Madhya Pradesh</td>
<td>1302</td>
<td>4.43</td>
</tr>
<tr>
<td>16</td>
<td>Maharashtra</td>
<td>2420</td>
<td>8.23</td>
</tr>
<tr>
<td>17</td>
<td>Manipur</td>
<td>9</td>
<td>0.03</td>
</tr>
<tr>
<td>18</td>
<td>Meghalaya</td>
<td>3</td>
<td>0.01</td>
</tr>
<tr>
<td>19</td>
<td>Nagaland</td>
<td>5</td>
<td>0.02</td>
</tr>
<tr>
<td>20</td>
<td>Orissa</td>
<td>425</td>
<td>1.45</td>
</tr>
<tr>
<td>21</td>
<td>Punjab</td>
<td>1196</td>
<td>4.07</td>
</tr>
<tr>
<td>22</td>
<td>Rajasthan</td>
<td>515</td>
<td>1.75</td>
</tr>
<tr>
<td>23</td>
<td>Tamil Nadu</td>
<td>3792</td>
<td>12.9</td>
</tr>
<tr>
<td>24</td>
<td>Tripura</td>
<td>22</td>
<td>0.07</td>
</tr>
<tr>
<td>25</td>
<td>Uttar Pradesh</td>
<td>2652</td>
<td>9.02</td>
</tr>
<tr>
<td>26</td>
<td>West Bengal</td>
<td>1089</td>
<td>3.7</td>
</tr>
<tr>
<td>27</td>
<td>Others</td>
<td>9</td>
<td>0.04</td>
</tr>
<tr>
<td></td>
<td><strong>Total</strong></td>
<td><strong>29,407</strong></td>
<td><strong>100</strong></td>
</tr>
</tbody>
</table>

Source: Food Processing Industry, Yogin Vora on May 7, 20

A perusal of the above table clearly shows that Andhra Pradesh had 34.62 percent of the food processing industry which is a little more than one-third in the Indian manufacturing industry.

**GROWTH OF FPI SECTOR IN ANDHRA PRADESH:**

Agriculture will experience a quantum leap in growth, achieving an average annual
growth rate of 8.4 percent in real terms over the next 20 years. This will bring about a four-fold increase in agriculture GSDP will be Rs 90,000 crores in 2020-21. The food processing industry has grown from US$ 141 million in 2004 to US$ 185 million in 2009.

The state witnessed higher growth rate in food processing industries than that in the all-India level. The growth rate in the net value added increased marginally from 18.98 percent during 1991-92 to 2000-01 to 29.01 percent during 2001-02 to 2008-09. At the all-India level, Andhra Pradesh is the second biggest in value added in the country and far ahead of Kerala (8.3%), Tamil Nadu (6.1%) and Karnataka (5.7%) in 2007-2008. Due to the strenuous and concerted efforts made at the state level the food processing industry in Andhra Pradesh is poised for a paradigm shift. The government of Andhra Pradesh has given the sector a new facelift and all that is required is to ensure growth of the sector. The state has already started reaping the dividends of the policy.

Food Processing Industry is valued at INR 3.4 trillion (USD 70 billion) and is expected to witness a CAGR of 14% (2009-2012). States like Andhra Pradesh, Uttar Pradesh & Madhya Pradesh are highly attractive for Food Processing Industry. The same was reinstated by Subodh Kant Sahai, Minister of State for FPI in Lok Sabha through a statement, “based on the production of raw material like fruits and vegetables, grains, oilseeds, poultry, fish etc, Andhra Pradesh has good potential for Food processing industry”. Many food processing industries have been coming up in the state in the last few years with the increasing globalization of local diets and increasing incomes. There is also a scope to prepare traditional Andhra dishes in a scientific and hygienic way and market them. Some of them can be exported to ethnic population also. These items are chutneys, snacks like sweets, pootharekulu, papads, puffs, fried materials, curd etc. The demand for bakery item is ever increasing and the new entrants are catering to the emerging huge market, Besides, several small and tiny units are preparing these traditional processed foods in a cost effective

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86 Source :CMIE (2008), Andhra Pradesh (http://www.cmie.com/database)
way by utilizing their free labour. However the technology is very poor. In Andhra Pradesh, large numbers of self help groups are focusing on these foods and are even supplying to organized food chains. The groups can also produce some items with the rice with high percentage of broken. Already some groups in districts like Nellore and Krishna are making Idlee Ravva with this rice. In this context, the role of government must be to strengthen these activities by upgrading the technology and credit facilities and adequate backward and forward linkages. Besides making efforts to increase the exports of processed food products, the state government should also increase awareness among the public on the use of these products and create local demand. This is always necessary to establish and sustain the industry. It is ideal to cover the overheads and other costs with the local sales and look for profits from exports.

Pawar pointed to National Mission on Food processing a decentralised initiative to encourage state participation in the sector by ensuring convergence of various programs. To involve the state governments and facilitate industries even in semi-urban areas, ministry of food processing industries has come out with a new program-'National Mission on Food Processing', which is going to be a part of national food security and Union Government is set to launch the program in August 2012 as stated by U.Venkateswarlu, Joint Secretary, Ministry of Food Processing Industries, Government of India. Under National Mission, Union Government will spend 75% and State Governments has to share 25% on food processing related activities. Four important aspects of the mission include upgrading technology, human resource development, cold chain system and promotional activities including packaging.

Andhra Pradesh State government asked Infrastructure Corporation of Andhra Pradesh (INCAP) to develop a strategic plan till 2013 for food processing industry in the state. It is keen on setting up multiple food processing units and related infrastructure across the state under the public-private-partnership model. Speaking to Business Standard,
Infrastructure Corporation of Andhra Pradesh Vice-Chairman and Managing Director, K.V. Reddy said the idea was to reduce the dependence on agriculture for livelihood and instead divert some of them to food processing, which is an allied sector of farming and also do value addition. State plans to adopt a cluster model to develop each crop. The effort would be on equitable distribution of food articles and bring in a price control mechanism for better returns to the farmer. This will also aid migration of agriculture labour to semi-skilled areas.

FEATURES OF THE FOOD INDUSTRY OF ANDHRA PRADESH:

The following are the characteristics of the processing industry in the state:

1. Food industry accounts for 22.36 percent of the industrial production and is second amongst all states in value added food products and beverages. 12 percent of national value added food products come from the state.

2. Food Processing Industry saw rapid growth in 80’s and early 90’s followed by a slow down. Rs 1210 crores invested in 5350 factories in organized food processing.

3. Out of the different segments of the food processing industry 65% enterprises are in grain million and other key segments are processing of nuts, bakery products and dairy products.

EMPLOYMENT

The strategy in each sector of the economy aims to generate employment along with growth. The strategy for agriculture will certainly create new jobs, especially in the allied sector. However agriculture’s share of employment will actually reduce from the current 70 percent of 40-45 percent, in line with a shift in the State’s economy. As economies grow, the focus on economic activity shifts from primary activities to those that lead to greater value - addition. As Andhra Pradesh economy develops, it will follow the same pattern, shifting from a predominantly agrarian to an industry- and services-led economy. The employment generation in food processing industry as on 2011 is 1.19 lakhs.
INVESTMENT

Achieving the growth envisaged for the agricultural sector will require significant investment. The State invested around Rs 26,439 crores in 2010, while the total investment in 2020 will be roughly 1,60,000 crore.

AGRO-FOOD PROCESSING INDUSTRY IN THE STATE:

Agro-industry generates new demand on the farm sector for more and different agricultural outputs, which are more suitable for processing. On the other hand, the development of these industries would relax wage goods constraint to economic growth by enhancing the supply of their products. The agro-based industry in Andhra Pradesh employs around 65 percent of its total population. The State produced 24.9 MMT of food grains in 2008-2009. Production of oilseeds and cotton stood at 8.6 MMT and 10.15 million bales of 650 kg respectively. Andhra Pradesh contributes 30-40 percent to the total seafood exports in the country. The state is keen to improve the research infrastructure in the agro sector and has established several organizations. Several multinational companies have established their facilities in the state. It has about 216.03 lakh operational land holdings.87

1. AGRI-EXPORT ZONES: Agri Export Zones act as an apt gateway to explore the potential in international market. These zones look at specific functions such as identifying right sourcing for Raw material, specific produce/product development, production/processing/packaging leading to final export by integrating an end-to-end approach.

State of Andhra Pradesh has identified 5 Agri Export Zones in different districts with specific produce. Chittor Agri Export Zone envisaged a total investment of Rs 91.4 crores by private entrepreneurs, Government of Andhra Pradesh and Government of India, other Agri Export Zones are being developed jointly by State and Central Governments with an investment of 95.15 crores.

2. MEGA FOOD PARKS: Mega Food

The idea behind setting up of food parks is that small and medium entrepreneurs find it difficult to invest in capital-intensive activities. Therefore, as a part of the strategy to develop food processing infrastructure, the ministry has been pro-actively pursuing the task of setting up of food parks in different parts of the country. Government has conducted a survey to assess the feasibility of establishing Mega Food Park in Andhra Pradesh in 2007-2008 which is essentially aimed at attracting entrepreneurs to invest in food processing sector by improving modern infrastructure. The economic and manufacturing basis of the country shows a steady growth at 9% and agriculture only at 2.2% with food processing standing at 16%. Taking into consideration factors like demand, growth, purchasing power, urbanization and higher income levels, Ministry has decided to give the much required boost and support to food chain right from the producer to the retail outlet through setting up of Mega Food Parks.

With 30 mega food parks in select cities, each beginning with a subsidy of about $12 million and channeling incoming Foreign Direct Investment towards the food processing industry the phenomenal food waste may be curbed to certain extent. Experts opined that mega food parks would bring a transformation like Green Revolution. Food parks in 3 main regions of state namely, Telangana, Andhra and Rayalaseema are proposed to be set up catering to specific processing lines namely,

*Telangana Food Park: Part looks at processing of poultry products/processing of coarse grains and millets/spices (chillies and turmeric)

*Coastal Andhra Food Park: Park focussed on value added rice products/dairy products/horticultural products/marine products/lab oriented, export oriented.
SRINI FOOD PARK-INDIA’S FIRST MEGA FOOD PARK IN ANDHRA PRADESH:

Agriculture and Food Processing Industries minister, Shri Sharad Pawar inaugurated the Srini mega food park at Chittoor in Andhra Pradesh on 9th July, 2012. This is the first mega food park in the country. From seed to shelf, Srini Food Park facilitates end to end food processing with beneficial forward and backward linkages. On par with the software parks, this new-age facility is equipped with central processing centre and primary processing centres. It aims at becoming a pioneering infrastructure enabler and facilitator for the food processing industry.

As a model ‘Mega Food Park’ and the first of its kind in India, Srini provides state-of-the-art food processing infrastructure designed as per global standards and develops a veritable market place with common facilities on the lines of a software park or a textile park. In sprawling 147-acre space, Srini Food Park provides world-class facilities for pulping, IQF, bottling, tetra packing, modular cold storage, warehousing and advanced testing lab. Mega Food Park is promoted by experienced professionals and supported by the government i.e., the ministry of food processing industries and the Andhra Pradesh infrastructure investment corporation) and is intended to benefit all components of the value chain88 as follows,

*Rayalaseema Food Park: This park focussed on processing of vegetables, onion, tomato/fruits/spices etc.

88 Andhra Wishesh, August 30, 2012.
### TABLE II.12

**TABLE SHOWING BENEFITS TO COMPONENTS OF VALUE CHAIN IN FPI**

<table>
<thead>
<tr>
<th>Food Processors</th>
<th>Farmers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Developed plot in the mega food park on lease with power, water and ETP facilities.</td>
<td>1. Sell produce to collection centres.</td>
</tr>
<tr>
<td>2. Cutting edge processing facilities in CPC.</td>
<td>2. Benefit from higher pricing.</td>
</tr>
<tr>
<td>3. Reap benefits of power cost, common facilities, testing, government support.</td>
<td>3. Avail of information regarding seed and other best practices.</td>
</tr>
<tr>
<td>4. Avail backward and forward linkage benefits.</td>
<td>4. Reduce losses through best practices in handling and packing.</td>
</tr>
<tr>
<td>5. Increase profitability.</td>
<td>5. Avail of primary processing facilities, Cold Storages, Ripening Chambers and Ware houses.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Retail Chains</th>
<th>MNC Exporters</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Avail of good quality produce.</td>
<td>1. Avail good quality product from producers.</td>
</tr>
<tr>
<td>2. Avail standardized products.</td>
<td>2. Be sure of product quality through food chain.</td>
</tr>
<tr>
<td>3. Benefit from quality assurance from our testing labs.</td>
<td>3. Quality assurance provided.</td>
</tr>
<tr>
<td>4. Benefit from good transportation facilities viz. reefer trucks and vans.</td>
<td></td>
</tr>
<tr>
<td>5. Avail of labeling, packing facilities at mega park.</td>
<td></td>
</tr>
<tr>
<td>6. Satisfy your customer through good product.</td>
<td></td>
</tr>
</tbody>
</table>

It enables basic and supply chain infrastructure, cluster farming and is ably backed by field collection centers, self help groups and individual farmers. With the highest growth in the fruits and vegetables sector (20%) and with Chittoor being the largest fruits and vegetable cluster in India, this mega food park becomes an ideal destination for food processing units.

Andhra Pradesh plans to roll out three integrated Agri Business Investment Regions (ABIR)-Anantapur to Adilabad, Nellore to Icchapuram and Guntur to Warangal. Agriculture
and Agricultural Technology Mission Minister, Kanna Lakshminarayana said the ABIRs would be developed like Delhi Mumbai Industrial Corridor (DMIC) and state planned to rope in Israel, Netherlands and US as partners to bring in investment and technology.

CONTRACT FARMING IN FOOD PROCESSING:

The procurement of raw materials with right quantity and quality, minimum cost and time poses a serious problem for the food processing industries. On the other hand, the small and marginal farmers find it difficult to cultivate lucrative and new processable crops because of the marketing problems and price risks involved. Contract farming can be a possible solution for this. (Eaton and Shepherd, 2001) Contract farming can be defined as an agreement between farmers and processing and/marketing firms for the production and supply of agricultural products under forward agreements, frequently at predetermined prices (Singh et al 2003). It reduces production risk to the processors and price risk to the farmers. However as it is an agreement between unequal parties care and caution is required. There is possible danger of violation of contracts by any of the parties. Thus the state should support by enacting legal provisions essential to enforce the contracts and provide an effective and trustworthy arbitration.

Contract farming has a start right in the 19th century with respect to the commodities like cotton, indigo, tobacco. Later seed production has been carried out through contract farming by the seed companies in the state over the past two to three decades which was quite successful. Contract farming is evolved during the past decade in different forms in India to take care of the processing industry needs and farmers, for whom negotiating the price risk

in open trade regime became a prime task.\textsuperscript{90} However, analysis of the past evidences that the processing companies are favoring large farmers mainly for undertaking contract farming\textsuperscript{91}

**EXPORT CONTRIBUTION**

The table below gives the information regarding the contribution of food processing industry sector in Andhra Pradesh to total exports in India:

TABLE – II.13  
**TABLE SHOWING EXPORT CONTRIBUTION OF FPI IN ANDHRA PRADESH**

<table>
<thead>
<tr>
<th>Year</th>
<th>Processed fruits and vegetables</th>
<th>Animal Products</th>
<th>Other Processed Foods</th>
<th>Grand Total</th>
<th>Export Share of Andhra Pradesh % Value Growth Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001-02</td>
<td>1100.57</td>
<td>1500.93</td>
<td>1780.07</td>
<td>4381.57</td>
<td>7.30</td>
</tr>
<tr>
<td>2002-03</td>
<td>1206.93</td>
<td>1800.53</td>
<td>1720.11</td>
<td>4727.57</td>
<td>8.25</td>
</tr>
<tr>
<td>2003-04</td>
<td>1125.81</td>
<td>2024.81</td>
<td>2316.41</td>
<td>5467.06</td>
<td>8.91</td>
</tr>
<tr>
<td>2004-05</td>
<td>1462.72</td>
<td>2252.33</td>
<td>2032.34</td>
<td>5747.39</td>
<td>9.68</td>
</tr>
<tr>
<td>2005-06</td>
<td>1359.54</td>
<td>3566.96</td>
<td>2613.93</td>
<td>7539.43</td>
<td>10.80</td>
</tr>
<tr>
<td>2006-07</td>
<td>1402.31</td>
<td>3756.41</td>
<td>2895.32</td>
<td>8054.04</td>
<td>11.65</td>
</tr>
<tr>
<td>2007-08</td>
<td>1545.32</td>
<td>4625.36</td>
<td>2930.12</td>
<td>9100.80</td>
<td>12.10</td>
</tr>
<tr>
<td>2008-09</td>
<td>1490.89</td>
<td>5025.69</td>
<td>3215.00</td>
<td>9731.58</td>
<td>13.40</td>
</tr>
</tbody>
</table>

Source: Annual Reports of MOFI, Government of India, 2001-02 to 2008-09.


A review of the above table reveals that Andhra Pradesh contributed 7.30 percent in 2001-02 and 13.40 percent in 2008-09 of the total exports of food products from the state. The average growth rate of exports in Andhra Pradesh is 19.80 percent over the period of 8 years. This higher percent speaks of the importance attached to the sector and the potential for future growth.

TABLE –II.14

TABLE SHOWING PHYSICAL PROGRESS OF FOOD PROCESSING INDUSTRY
IN ANDHRA PRADESH:

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Units</th>
<th>Investment (Rs. In Lakh)</th>
<th>Employees</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Food &amp; Beverage</td>
<td>Growth Rate</td>
<td>Food &amp; Beverage</td>
</tr>
<tr>
<td>2000-01</td>
<td>6250</td>
<td>16.82</td>
<td>128452</td>
</tr>
<tr>
<td>2001-02</td>
<td>6487</td>
<td>3.79</td>
<td>130200</td>
</tr>
<tr>
<td>2002-03</td>
<td>6658</td>
<td>2.64</td>
<td>138951</td>
</tr>
<tr>
<td>2003-04</td>
<td>6710</td>
<td>0.78</td>
<td>142147</td>
</tr>
<tr>
<td>2004-05</td>
<td>7250</td>
<td>8.05</td>
<td>156895</td>
</tr>
<tr>
<td>2005-06</td>
<td>7810</td>
<td>7.72</td>
<td>168585</td>
</tr>
<tr>
<td>2006-07</td>
<td>8015</td>
<td>2.62</td>
<td>185250</td>
</tr>
<tr>
<td>2007-08</td>
<td>8250</td>
<td>2.93</td>
<td>214200</td>
</tr>
<tr>
<td>2008-09</td>
<td>10183</td>
<td>23.43</td>
<td>254120</td>
</tr>
</tbody>
</table>

Source: Calculated from ASI data

The physical progress of food processing industry includes the number of units established, employment provided and investment made.

The table above shows that the average growth rate of the number of food processing units is 6.88 percent, investment in the FPI sector is 7.85 percent and the number of employees in the food processing industry sector in Andhra Pradesh is 9.37 percent.
SECTOR-WISE OUTLOOK OF STATE FOOD PROCESSING INDUSTRY:

Grains:
The major food grains grown in the state are Rice, Maize, Jowar and Pulses. A.P. is the 3rd largest producer of food grains in the Country with annual production of 20.4 million tons in 2008-09. A.P. contributes 8.4% of the national food grain production. The production of food grains in the state has increased from 13.4 million tons in 2004-05 to 20.4 million tons in 2008-09. Andhra Pradesh ranks 1st in production of maize and produces nearly 21% of the maize in the country. Grain processing is the biggest component in the organized sector sharing 40% of the total value in the state.

Oil Seeds:
The major oil seeds grown in the state are soya bean, sunflower and groundnut, the state has largest oil palm in the country. The state is also the 3rd largest producer of coconut in the country. The state is the 5th largest producer of the oil seeds in the country with a production of 2.1 million tons in 2008-2009. Andhra Pradesh contributes to 7.2% of the national oil seed production. The state has 1.5 lakh oilseed crushing units, 795 Solvent extraction units, and 127 refineries attached with vanaspathi units.

Fruit & Vegetables:
Andhra Pradesh Produces about 11.4 million tons of fruit which is highest among all states in India and comprising 19% of the total production of fruits in India. Andhra Pradesh ranks first in production of citrus Papaya and spices, second in Mango and Tomato, 3rd in Pomegranate, 4th in Banana, Grape in the country. The production of fruits in Andhra Pradesh increased from 6.2 million tons in 2001-02 to 11.4 million tons in 2008-09 and vegetable production in the state increased from 2.6 million tons in 2001-02 to 5.3 million tons in 2008-09. The average productivity of fruits and vegetables in the state is 12.2 million tons/hectare, 16.2 million tons/hectare respectively, where as the national average
productivity of the fruits is 11.2 million tons/hectare and vegetables is 16.2 million tons/hectare.

**Dairy Processing Sector in Andhra Pradesh**

Andhra Pradesh has strong dairy processing including a processing capacity of 0.52 million litres/day. The average milk production per day in the state is 24.3 million litres per day. The processing capacity in the organized sector is 22% of the country’s processing capacity.

**Meat:**

Andhra Pradesh has a large population base of animals and poultry in the state. The state has the highest population of poultry and the second highest population of cattle and buffaloes in the Country. The state overall is the second largest producer of meat in the country with an annual estimated production of 6.5 lakh tons and contributes about 10% of the national meat production. Meat is sold in three forms – raw, chilled and frozen. The organized processors are mainly present in the chilled and frozen segment. Frozen meat is mainly meant for export and Tier-I cities. The meat processing industry in the state is at very nascent stage. 98% of the total meat consumed in the state remaining 2% is chilled and frozen meat products segment, which has a limited market size. As per Andhra Pradesh Export Development Agency’s estimates there are about 343 slaughter houses in the state which are supervised by municipal corporations and local bodies like Panchayats etc. The infrastructure in these slaughter houses are in dilapidated condition. There are about seven processing units in the state in organized sector such as Allanasons Al-Kabeer in animal meat Suguna Chicken, Sneha Farms, Star Chicks, Diamond and Sumeru are in poultry meat segment. These processors are mainly catering the meat to the export market and high and domestic market.

**Poultry**

Andhra Pradesh produces 22% of the total poultry production of the country with an estimated poultry population of 102 million. In addition to poultry the state is also the leading supplier of eggs and produces 31% of the country’s total egg production. Both live
as well as chilled products are sold in retail stores source of the major food processing poultry producers are: Sugana, Venky’s, Rami Reddy Chicken, Sneha farms etc. where the birds are produced and processed from their own farms.

**Fisheries**

Fisheries sector occupies a very important place in the socio-economic development of the State Andhra Pradesh. It is a source of livelihood to 3 million people. Fisheries sector is contributing 2.39 percent to the gross domestic product of the state. Andhra Pradesh is the topmost producer of cultured shrimp and scampi in the country, 2nd top most producer of fresh water fish in the country after West Bengal, 5th top most producers of marine fish. Andhra Pradesh produces 12.53 lakh tons of fish out of which 9.62 lakh tons of in land fish and 2.91 lakh tons of marine fish.

**INCENTIVES AND CONCESSIONS OFFERED BY GOVT OF A.P TO FOOD PROCESSING INDUSTRY**

1. To declare food processing as seasonal industry, where ever necessary and eligible to enable the industry to get relief from minimum electricity charges during the closure (non-seasonal) period.

2. To extend 25% cost of external infrastructure for power, water, approach roads and other infrastructures limited to Rs 2.00 Crores.

3. To provide VAT/ State Goods & Services Tax Reimbursement for Mega Food Parks during the construction period for a period of 2 years limited to a maximum Rs 2.00 Crores. The food parks sanctioned under Mega Food parks scheme of Government of India would be considered for Tailor-made benefits on case to case basis.

4. Fixed power cost reimbursement @ Rs 1.00 per unit (upper ceiling) on the proposed revised rates (2010-11) for 5 years, in case decrease in power Tariff, the reimbursement will be reduced proportionately.
5. All eligible industries / enterprise under food processing will also be eligible for other benefits as per the Investment Promotion Policy 2010-2015.

CONSTRAINTS IN FOOD PROCESSING INDUSTRY OF ANDHRA PRADESH:

The food processing industry in the state is plagued by a number of bottlenecks on the supply side. These include:

(i) non-availability of raw materials in adequate quantity and of right quality;
(ii) small size of the units and obsolete technology leading to diseconomies of scale, regulations, and policy hurdles;
(iii) high taxes;
(iv) lack of post-harvest infrastructure;
(v) inadequate labs for testing and certification of food standards; and
(vi) lack of adequate financial support for different production and marketing processes.

RISE OF RETAIL CHAINS:

In Andhra Pradesh, the twin cities of Hyderabad and Secunderabad are attracting private sector initiatives to establish supermarkets (or hypermarkets) and retail chains. Food World of the RPG group was the first to set up a hypermarket in Hyderabad. About 15,000 customers are visiting the Hyderabad store everyday.92 Other important business players in supermarkets and retail chains operating in Andhra Pradesh are Trinethra, Nilgiris, Food Bazar, Subhksha, and Spencers. Reliance Fresh started its operations in fruits and vegetable retail in November 2006 and has opened 35 stores across the state. The Indian Tobacco Company Limited (ITC) has entered this segment in early 2007 through Choupal Fresh stores on the lines of its e-Choupal model. In January 2007,Trinethra

had 83 retail stores spread across important cities in Andhra Pradesh, namely Hyderabad, Secunderabad, Vizag, Vijaywada, Guntur, and Rajahmundry.

PROMOTION OF FOOD PROCESSING INDUSTRY IN ANDHRA PRADESH:

Considerable investment opportunities exist in agro- and food-processing industries in the state. Though the growth of grain milling has slowed down (from 5.63 percent per year in the 1980s to 1.43 percent in the 1990s), it is rapidly increasing for bakery (4.27 percent in the 1990s), dairy products (4.91 percent in the 1990s) and fish products (3.91 percent in the 1990s). The state needs to tap the opportunities from the demand side as well as various schemes initiated by the Central government to boost the agro-processing sector. An enabling environment may also be created to increase production of HVCs (especially dairy, fisheries, and horticultural commodities).

Andhra Pradesh has opportunities in processing sorghum, maize, mango, grapes, and tomato. Rayalaseema region (poverty-ridden and fragile) is dominated by sorghum production, which can be processed for livestock feed, beer, and ethanol. Similarly, sweet sorghum varieties are now available for ethanol production to blend with petrol and diesel for producing Gasohol. Maize has high potential for livestock (especially poultry) feed, ethanol production, and value-added food products (like corn flakes). Mango processing can take a lead in the state, especially in the coastal region in Andhra Pradesh. The total market value of mango and mango pulp represents 25 percent of the value of agricultural and processed food products exported by India. The growth in consumption of mangoes in the United States and Europe has averaged 10–15 percent per annum during the last five years. Other examples are grapes for wine and tomato for ketchup or sauce. A favorable business environment needs to be created for promoting agro-processing in the state. Foreign Direct Investment up to 100
percent is allowed in the food processing sector. Though the inflow of FDI is increasing it was only 4 percent of total FDI approved by the government. It is because the industry is facing a number of challenges that include monopoly commodity markets leading to high cost of procurement for raw materials, poor infrastructure, high transactions cost, multiplicity of laws, price controls, and high taxes on processed foods. To take an example from the horticulture sector, India is a major producer of fruits, vegetables, and milk in world production. However, due to low share in processing, less than one percent of fruits and vegetables are exported. Unless necessary steps are taken, the high potential of this sector will remain untapped.

Need of the hour - Investment in Infrastructure

Andhra Pradesh has the advantage of having nine ports (including India’s largest major port at Visakhapatnam) and four airports (including one international). Almost all the villages are electrified (compared to only 84 percent at the all-India level). However, the state has poor road, rail, and market connectivity as compared to many other states, including Punjab. There is a need to invest on infrastructure development, especially roads, cold storage, and cold chains. The quality of HVCs is adversely affected when transported to long distances in the absence of adequate road or rail network. Therefore, improving road and rail connectivity will help farmers to access markets. Also facilities at airports and ports should be upgraded and linked with good roads and rail network to promote exports. Post-harvest losses of fruits and vegetables are very high. Driven by supply and demand factors, prices of HVCs fluctuate considerably across seasons. Cold chains provide an opportunity to producers to store their products and sell them to long distance markets when local markets are not favorable. Secondly, cold

93 New Delhi, June 21. Srinivas, Nidhi Nath. 2006. ‘Food sector’s FDI pie to hit $2bn mark’. The Economic Times,
chains are essential to preserve the quality of the product over a longer period. There is a positive correlation between the number of cold storage units and production of fruits and poultry products. In the state, more cold storages are concentrated in the coastal region and less in rain-fed areas. Unfortunately, farmers' awareness about cold storage units is very poor. Hence, in some of the areas, the units are not fully occupied round the year. High levels of power tariff and erratic power supply are the main problems in maintaining cold storage units. The use of generators escalates the cost of storage and leads to deterioration in the quality of product. In this connection, the following are important:

(i) build more cold storage,
(ii) educate farmers about the cold storage, and
(iii) Ensure electric supply for cold storage facilities.

Similarly, agricultural research needs to tune its research agenda in view of changing demands for food commodities, especially HVCs and quality improvements of traditional crops. Involvement of the private sector (especially agri-business) in understanding and identifying constraints in the supply chain of HVCs would help in better targeting of technologies for various markets.

VISION OF ANDHRA PRADESH WITH RESPECT TO DEVELOPMENT OF FPI

The suggested measures need to be embarked in an integrated framework for mitigating risk, accelerating agricultural growth, and improving the quality of life. The suggestions revolve around conserving water, reducing subsidies, improving technologies, and promoting agricultural diversification towards HVCs. Conserving water and reducing subsidies means releasing resources for investment to create infrastructure and promote agricultural diversification. If the state follows what has been proposed earlier and improves incentives, strengthens institutions, and develops infrastructure, the future Andhra Pradesh is expected to be characterized as follows:
• Rice production concentrated in the Coastal region, utilizing surface irrigation, and HVCs concentrated in the Rayalaseema and Telangana regions.

• Production centers of traditional crops with high quality for niche markets (such as confectionery groundnut, quality protein maize, high ethanol content maize and sorghum, and superior rice).

• Large production centers for poultry and maize, dairy, livestock meat, fisheries, fruits and vegetables.

• Hubs of processed commodities, for example mangoes for juice and pulp; grapes for juice and wine; maize for livestock feed and fuel; sorghum for livestock feed and fodder, fuel and beer; tomatoes for ketchup or sauce; poultry for meat and egg powder to the Gulf countries and the EU.

• Centers for export of mangoes, grapes, gherkins, mango pulp, chilies, meat, eggs, aqua-products to the Gulf countries, EU, and the Central Asian countries.

• Greater private sector participation in developing infrastructure (like cold storage, refrigerated vans), and agri-business by offering incentives and reducing bureaucratic hurdles.

• Well-organized retail network spread across the state and strong farm–firm linkages through contract farming.

• Improved use of scarce water resources by adopting water-saving technologies and commodities.

With these developments, we envision a strong and vibrant agriculture in the state with higher farm incomes, lesser risk, more jobs opportunities, and better environment for food processing industry.